REMARKS

The above amendments have been made to make a number of minor editorials corrections to the specification.

Attached hereto is a marked-up version of the pages of the specification to which changes have been made by the current Amendment. The attached pages are captioned ***"Version with Markings to Show Changes Made."***

Respectfully submitted,

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In the PWM technique, it is necessary to form a record mark without distortion, that is, form the leading and trailing ends of the record mark in the same quality because the width of record mark has information. Especially, when a long mark is formed in a phase-change-type optical disk, the width in the radial direction of a record mark increases toward the latter-half portion due to the thermal storage effect of a recording film, that is, the record mark is distorted like a tear drop. In order to solve the problem, a recording method is proposed for forming one record mark by applying a plurality of short pulse strings (e.g. Japanese patent laid-open Publication No. ~~(185628/1990)~~ 185628/1991).

A general optical disk has a spiral track or concentric information tracks on the disk surface, and it records or reproduces information by applying a laser beam along the information track. In order to manage recording data easily, the information track is divided into sectors and addresses are given to the sectors.

The data format of an optical disk in which data can be recorded can be roughly classified into two types. One of them has a sector format in which address sections and data sections are separated from each other. Magneto-optic disk and DVD-RAM standardized by ISO/IEC 10089 and the like belong to this type. Because the address sections are completely separated, address reproduction and data recording can be performed by time sharing without interfering each other even on recording. Moreover, a buffer area referred to as a gap area is generally provided at a boundary between a address section and a data section. Therefore, a recording apparatus can perform laser power control in any sector even when data is currently recorded, by using the gap area.

holding period. Thus, the S/N ratio of the wobble signal under data recording is improved and the jitter of a recording clock can be reduced. Thus, it is possible to improve the recording performance and the reliability.

Moreover, by preparing the two types of binarizers for a land prepit with different binarization slicing levels for a mark portion and for a space portion, and by changing the two binarized signals in accordance with the change of mark and space, it is possible to always binarize the land prepit at an optimum slicing level under data recording. Thus, it is possible to improve the read error rate of a land-prepit address under data recording and the reliability of data recording is improved.

Though not explained above in detail, a circuit for servo error may be fabricated as described in, for example, Japanese patent laid open Publication (7-3202828/1995). A circuit for detection of prepit information may be fabricated as described in, for example, Japanese patent laid open Publication 10-3202828/1998. Further, a circuit for wobble signal may be fabricated as described in, for example, Japanese patent laid open Publication 2000-113454. With reference to these publications here, they are incorporated in the specification.

By using the configurations of the optical information recording apparatuses of the embodiments and the above-mentioned laser beam intensity detection method explained above, sampling timing of detection of laser beam emitted to a recording medium or detection of laser beam reflected from a recording medium can be changed appropriately in accordance with the propagation delay time and the settling time of the system. Then, the sampling timing of a detection signal can always be kept properly even if there are